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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,227	09/06/2001	Dong Hun Jang	B-4208PCT 61	6100

7590 10/17/2003

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EXAMINER

WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746.

DATE MAILED: 10/17/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,227

Applicant(s)

JANG ET AL.

Examiner

Wills M Monique

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Priority

Republic of Korea foreign priority document(s) 1998/57031 filed December 21, 1999 and submitted under 35 U.S.C. 119(a)-(d), has/have been received and placed of record in the file.

Information Disclosure Statement

The information disclosure statement(s) filed August 27, 2001 and December 31, 2001 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 .

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 1 is rejected under the judicially created doctrine of double patenting over claims 1 of copending Application No. 09/807,772. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: claim 1 of the instant application is shown in claim 1 of 09/807,772 the solid electrolyte comprises and absorbent in powder form in an amount of 30 to 95%, an ion conductive electrolyte present in an amount of 30 to 90% and said electrolyte having a thickness of 10-200microns.

Regarding microporous structures of the electrolyte film, the electrolyte film of 09/807,772 inherently possess microporous structures as described on page 7, lines 15-20 of the instant specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. U.S. Patent 6,306,545 in view of Bronstert et al. U.S. Patent 6,416,905 and further in view of Shackle U.S. Patent 5,573,872.

Carlson teaches a solid electrolyte comprising a pseudo-boehmite layer having an average pore diameter from 1 to 300nm (col.3, lines 50-55). The layer further comprises a binder present in the amount of 5 to 70% (col.3, lines 60-68). The binder comprises polyvinyl alcohol, silicon and tin and zinc oxides (col. 4, lines 50-68 and col. 5, lines 1-10). The pseudo-boehmite may be an absorbent material of porous hydrated alumina (col. 8, lines 25-50). The electrolyte solvent imbibed in the pseudo-boehmite layer includes carbonates, sulfones and glymes (col. 14, lines 55-65). The electrolyte salt includes LiAsF_6 , LiClO_4 and LiSCN (col. 15, lines 30-50). The electrolyte is added to fill 15 to 80% of the pores of the polymer layer (col. 16, lines 10-20). The absorbent pseudo-boehmite material is present in about 84% of the dry freestanding film (col. 25, lines 45-50). The dry pseudo-boehmite layer has a thickness of 25 microns (col. 19, lines 30-35). The electrolyte may be present in the amount of 20% of the solid polymer electrolyte (col. 15, lines 20-25). The solid electrolyte may be made by the steps of : (a) coating onto a substrate a liquid mixture comprising boehmite sol, a binder and a liquid medium; and (b) drying the coating to yield the microporous layer . The subjecting the resulting film to the electrolyte liquid (col. 4, lines 35-45). The separator layer may be contacted with an organic electrolyte thereby causing infusion of the electrolyte into the pores of the pseudo-boehmite layer (col. 6, lines 10-20). Before the electrolyte is imbibed, the pseudo-boehmite layer may be assembled with the anode and cathode,

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and the electrolyte solvent may subsequently be subjected to the cell (col. 7, lines 60-68). Carlson is also concerned with small pore diameter to prohibit conductive particles of opposite polarity permeating the separator and short-circuiting the cell (col. 10, lines 1-10).

Carlson does not expressly disclose the particle size of the absorbent powder. The reference is silent to the electrolyte being added in an amount of 30 to 90% of the dry separator layer.

Bronstert teaches that it is conventional to employ solid absorbent particles in the range of 5nm to 20 microns to increase the cycle stability of the electrochemical cell.

Schackle teaches that it is conventional to employ an electrolyte solvent in an amount of about 30 to 50% solvent to activate the solid polymer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the absorbent particle size of Bronstert in the solid electrolyte of Carlson, in order to increase the cycle stability of the electrochemical cell.

Regarding the weight percent of the solvent in the solid electrolyte, it would have been obvious to employ the 30 to 50% solvent percentage of Schackle in the solid electrolyte of Carlson, to activate the solid polymer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. U.S. Patent 6,306,545 in view of McLoughlin U.S. Patent 4,849,144.

Carlson teaches a solid electrolyte as described hereinabove.

The reference does not expressly disclose an extraction step for exchanging a solvent with a non-solvent to form a microporous electrolyte film.

McLoughlin teaches that it is conventional to employ extraction methods to process separators in order to control the porosity of the separator (col. 1, lines 10-20). The reference teaches that the porosity of the separator should be carefully controlled since it affects directly the internal resistance of the cell (col. 1, lines 15-20). Further, the porosity of the separator may be increased by extraction of some of the plasticizer (col. 2, lines 60-68). The plasticizers may include tetrahydrofuran, dimethylformamide and dimethylsulphoxide (col. 4, lines 45-50). The extracting solvent includes ethylene glycol (col. 4, lines 50-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the extraction step of McLoughlin in method of

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Carlson in order to control the porosity because it directly affects the internal resistance of the cell.

Conclusions

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

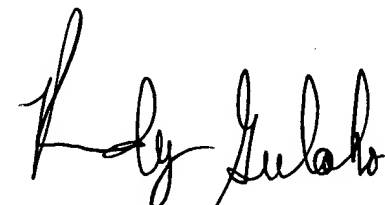
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

09/05/03



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